

TLP580, TLP581

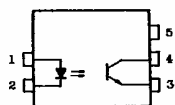
GaAlAs Infrared Emitting Diode & NPN Silicon Photo-Transistor

The TOSHIBA TLP580 and TLP581 consists of a gallium aluminum arsenide, infrared emitting diode coupled with a silicon photo transistor in a dual in-line package. TLP580 is no-base internal connection for high-EMI environments.

- AC Isolation Voltage : 5kV
- Nominal Isolation Operating Voltage (Note 1)
 - 1000Vac or 1200Vdc for Isolation Group B
 - 750Vac or 900Vdc for Isolation Group C
- Climatic Test Class : 25/100/21 DIN40045
- Internal Isolation Thickness Between Metal Parts
 - 2mm (Min.) (Note 2)
- External Creepage Distance and Airgaps
 - 14.5mm (Min.) (Note 3)
- Housing : Epoxy Molded
- TOSHIBA Unique Double Molded Construction
- High Efficiency Low Degradation Liquid Epitaxial
- LED
- Low Coupling Capacity : 0.3pF (Typ.)
- Current Transfer Ratio : 60% (Typ.)
- UL Recognized : File No. E67349
- VDE Approved : Certificate No. 37411

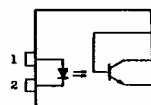
PIN CONFIGUTATION (TOP VIEW)

TLP580



1. ANODE
2. CATHODE
3. EMITTER
4. COLLECTOR
5. NC

TLP581



1. ANODE
2. CATHODE
3. EMITTER
4. COLLECTOR
5. BASE

- Note 1. According to VDE0110b/2.79
 2. According to VDE0730-2P
 3. Creeping current resistance : Group I (KB>100-KC>100)
 According to VDE011b/2.79 Table 3.

ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
LED	Reverse Voltage	V _R	5 V
	Forward Current	I _F	50 mA
	Forward Surge Current (t _p ≤ 100ms)	I _{FSM}	1 A
	Power Dissipation	P _D	100 mW
	Junction Temperature	T _j	100 °C
PHOTO-TRANSISTOR	Collector-Emitter Voltage	V _{CE0}	35 V
	Collector-Base Voltage (TLP581)	V _{CB0}	50 V
	Emitter-Collector Voltage	V _{EC0}	5 V
	Collector Current	I _C	50 mA
	Peak Collector Current ($\frac{t_p}{T} \leq 0.5$, t _p ≤ 10ms)	I _{CH}	100 mA
COUPLED	Power Dissipation	P _C	150 mW
	Junction Temperature	T _j	125 °C
	AC Isolation Voltage	V _{IS}	5 kV
	Storage Temperature	T _{stg}	-55 ~ 125 °C
	Operating Temperature	T _{opr}	-55 ~ 100 °C
Lead Soldering Temperature (at 10 sec.)		T _{sold}	260 °C
Total Power Dissipation		P _T	250 mW

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F =10mA	-	1.65	1.8 V
	Reverse Current	I _R	V _R =5V	-	10	μA
	Capacitance	C _D	V=0, f=1MHz	-	45	pF
	Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =0.5mA, I _F =0	35	-	V
PHOTO-TRANSISTOR	Collector-Base Breakdown Voltage (TLP581)	V _{(BR)CBO}	I _C =100mA, I _F =0	50	-	V
	Emitter-Collector Breakdown Voltage	V _{(BR)ECO}	I _E =100mA, I _F =0	5	-	V
	Collector Dark Current	I _{C0}	V _{CE} =10V, I _F =0	-	1	50 nA
	Collector-Emitter Capacitance	C _{CE}	V=0, f=1MHz	-	15	pF
	Current Transfer Ratio	I _C /I _F	I _F =10mA, V _{CE} =5V	25	60	%
COUPLED	Saturation Voltage	V _{CE(sat)}	I _F =10mA, I _C =2.4mA	-	0.1	0.4 V
	Capacitance Input to Output	C _S	V=0, f=1MHz	-	0.3	pF
	Isolation Resistance	R _S	V=1000V, 50% R.H.	-	10 ¹²	Ω
	AC Isolation Voltage	V _{IS}	t=1 minute	5	-	kV
	Turn-On Time	t _{on}	V _{CE} =10V, I _C =2mA R _L =100Ω	-	6	μs
Turn-Off Time		t _{off}	V _{CE} =10V, I _C =2mA R _L =100Ω	-	6	μs

